Brian E. J. Rose

Curriculum Vitae

Assistant Professor, Atmospheric and Environmental Sciences, University at Albany (SUNY)

Earth Sciences 351, 1400 Washington Ave., Albany NY, 12222 USA
(518) 442-4477 | brose@albany.edu
http://www.atmos.albany.edu/facstaff/brose/

Education

- **Ph.D. 2010**, Climate Physics and Chemistry, **Massachusetts Institute of Technology**. Oceanic control of the sea ice edge and multiple equilibria in the climate system (Advisor: J. Marshall. Awarded 2010 Rossby Prize.)
- **M.Sc. 2002**, Atmospheric and Oceanic Sciences, **McGill University**. A diagnostic scheme for global precipitation based on vertical motion (Advisor: C.A. Lin)
- **B.Sc. 1999**, Atmospheric and Oceanic Sciences, **McGill University**. Numerical simulation of a mesoscale vortex over the Beaufort Sea (Advisor: M.K. Yau)

Appointments

- Assistant Professor (tenure-track), Atmospheric and Environmental Sciences, University at Albany SUNY (2013 -)
- Research Associate, Atmospheric Sciences, University of Washington (2012 - 2013)
- NOAA Climate and Global Change Postdoctoral Fellow, Atmospheric Sciences, University of Washington. Host: David S. Battisti (2010-2012)
- Postdoctoral Associate, Earth, Atmospheric and Planetary Sciences, MIT (2010)
- Research Assistant, Earth, Atmospheric and Planetary Sciences, MIT (2005-2010)
- Research Assistant, Atmospheric and Oceanic Sciences, McGill University (2003-2004)
- Research Assistant, McGill University and Centre de recherche en calcul appliqué, Montreal (2000)

Teaching

- UAlbany A ATM/ENV 415 Climate Laboratory (2016 S, 2014 S) (previously A ENV 480)
- UAlbany A ATM 500 Atmospheric Dynamics (2016 F, 2015 F)
- UAlbany A ATM 623 Climate Modeling (2015 S)
- UAlbany A ATM 316 Dynamic Meteorology I (2014 F)
- UAlbany A ATM 619 Oceans and Climate Seminar (2013 F)
- UW ATMS 542 Geophysical Fluid Dynamics II, co-taught with David Battisti (2013)
- UW ATMS 514 / ESS 535 Ice and Climate, some guest lectures for C.M. Bitz (2011, 2013)
- Lecturer, Advanced Climate Dynamic Course ACDC2011, "Dynamics of Past Warm Climates" (2011)
- Lecture note preparation for P. O'Gorman, General Circulation of the Atmosphere, MIT (2009)
- Teaching assistant, guest lecturer for J. Marshall, Physics of Atmospheres and Oceans, MIT (2007)
- Lab assistant for middle school science class, Fayerweather Street School, Cambridge MA (2006-2007)
- Teaching assistant for R.S. Lindzen, Strange bedfellows: science and environmental policy, MIT (2006)

Publications

reprints available at http://www.atmos.albany.edu/facstaff/brose/

- Rose, BEJ and L. Rayborn* (2016), The effects of ocean heat uptake on transient climate sensitivity. Current Climate Change Reports (accepted). pdf reprint
- Voigt, A., M. Biasutti, J. Scheff, J. Bader, S. Bordoni, F. Codron, R.D. Dixon, S. Kang, N.P. Klingaman, R. Leung, J. Liu, B. Mapes, E.A. Maroon, S. McDermid, J. Park, R. Roehrig, B.E.J. Rose, J. Seo, T. Toniazzo, M. Yoshimori, and L.R.V. Zeppetello (2016), The Tropical Rain belts with an Annual Cycle and Continent Model Intercomparison Project: TRACMIP. JAMES (submitted).
- Hoffman, P.F., D.S. Abbot, Y. Ashkenazy, D.I. Benn, P.A. Cohen, G.M. Cox, J.R. Creveling, Y. Donnadieu, D.H. Erwin, I.J. Fairchild, D. Ferreira, J.C. Goodman, G.P. Halverson, M.F. Jansen, G.L. Hir, G.D. Love, F.A. Macdonald, A.C. Maloof, G. Ramstein, B.E.J. Rose, C.V. Rose, E. Tziperman, A. Voigt, and S.G. Warren (2016), Climate dynamics of Snowball Earth and Cryogenian geology-geobiology. Science Advances (submitted).
- Rose, BEJ and M.C. Rencurrel* (2016), The vertical structure of tropospheric water vapor: comparing radiative and ocean-driven climate changes. J. Climate 29, 4251–4268. pdf reprint

- Rose, BEJ (2015), Stable "Waterbelt" climates controlled by tropical ocean heat transport: a non-linear coupled climate mechanism of relevance to Snowball Earth. J. Geophys. Res. 150, doi:10.1002/2014JD022659 pdf reprint
- Rose, BEJ, K. Armour, D.S. Battisti, N. Feldl and D. Koll (2014), The dependence of transient climate sensitivity and radiative feedbacks on the spatial pattern of ocean heat uptake. Geophys. Res. Lett. 41, doi:10.1002/2013GL058955. pdf reprint
- Rose, BEJ, D Ferreira and J Marshall (2013), The role of oceans and sea ice in abrupt transitions between multiple climate states. J. Climate 26, 2862-2879. pdf reprint
- Rose, BEJ and D Ferreira (2013), Ocean heat transport and water vapor greenhouse in a warm equable climate: a new look at the low gradient paradox. J. Climate 26, 2117-2136. pdf reprint
- Ferreira, D, J Marshall and BEJ Rose (2011): Climate determinism revisited: multiple equilibria in a complex climate model. J. Climate. 24, 992-1012. pdf reprint
- Rose, BEJ (2010): Oceanic control of the sea ice edge and multiple equilibria in the climate system, PhD thesis, MIT, Cambridge MA. pdf reprint
- Rose, BEJ and J Marshall (2009): Ocean heat transport, sea ice, and multiple climate states: insights from energy balance models. J. Atmos. Sci. 66, 2828-2843. pdf reprint
- Rose, BEJ and CA Lin (2003): Precipitation from vertical motion: a statistical diagnostic scheme. Int. J. Climatol. 23, 903-919. pdf reprint

* *indicates student co-author*

Students Advised

- Christopher Cardinale (PhD student, 2016 -)
- Lance Rayborn (PhD student, 2015 -)
- Michael Cameron Rencurrel (PhD student, 2014 -)
- Deborah McGlynn (Undergraduate thesis, 2014)
  - currently graduate student at SUNY ESF

PhD Committees

- Pablo Paiewonsky, Chris Colose, Ted Letcher, Hannah Attard, Lanxi Min, Di Chen (all in progress at U. Albany)
- Anthony Coletti (U. Massachusetts Amherst)

Grants

- CAREER: Understanding the role of oceans in the planetary energy budget. NSF, $544,681, 2015-2020

Selected Honors and Awards

- NOAA Climate and Global Change Postdoctoral Fellowship, 2010-2012
- Carl-Gustav Rossby Prize for best thesis, MIT, 2010
- Jule G. Charney Prize and MIT Presidential Fellowship, 2004
- Dean's Honour List for M.Sc. thesis, McGill University, 2002
- NSERC Graduate Fellowship, McGill University, 2001-2002
- Meteorological Service of Canada supplement to NSERC Graduate Fellowship, 2001 (declined)
- NSERC Undergraduate Research Fellowship, 1999
- James McGill Scholarship and J.S. Marshall Prize, McGill University, 1995-1999

Summer Schools and Workshops

- UW PCC Summer Institute: Atmosphere-Ocean-Ice Shelf Interactions, Friday Harbor, WA. 09/2012
- NOAA Climate and Global Change Summer Institute, Steamboat Springs, CO. 07/2012
- ACDC2011: Dynamics of Past Warm Climates, Friday Harbor, WA. 09/2011
- Fundamental Problems in Climate Dynamics, Princeton University. 05/2009
- International Sea Ice Summer School, Svalbard. 07/2007

Invited Presentations

- UW, Atmos. Sci.: The vertical structure of tropospheric water vapor: comparing radiative and ocean-driven climate changes. 4/2016
- UW, Atmos. Sci.: Climate in the absence of ocean heat transport. 4/ 2016
- Columbia University, SEAS Colloquium in Climate Science: Understanding the effects of ocean circulation on radiative feedbacks and the planetary energy budget. 11/2015
- Stony Brook University, Marine & Atmos. Sci.: Understanding the effects of ocean circulation on radiative feedbacks and the planetary energy budget. 9/2015
- Massachusetts College of Liberal Arts: What sets the temperature of the Earth? (public lecture) 1/2015

- Caltech ESE seminar: The role of oceans in climate sensitivity and radiative feedbacks. 10/2013
- Courant Institute, NYU: The role of oceans in climate sensitivity and radiative feedbacks. 10/2013
- SIAM Dynamical Systems conference: Multiple sea ice states and hysteresis in climate models. 5/2013
- McGill University, Atmos. & Oceanic Sci.: One wet planet, many climates. 3/2013
- UW, Atmos. Sci.: Climate sensitivity and the oceans. 3/2013
- U. Albany, Atmos. & Environ. Sci.: One wet planet, many climates. 1/2013
- UW, Atmos. Sci.: Understanding why ocean heat transport matters: a multi-model approach. 11/2012
- MIT EAPS: Why does the climate system care about ocean heat transport? 5/2012
- UW, Oceanography: Modeling* the role of oceans and sea ice in multiple equilibria, abrupt climate change, and Snowball Earth (* and maybe understanding). 4/2012
- U. Chicago, Geophysical Sci.: Water, water everywhere: role of oceans in warm climates. 4/2012
- LDEO, Columbia U.: Why does the climate system care about ocean heat transport? 3/2012
- U. Chicago, Geophysical Sci.: Why does the climate system care about ocean heat transport? 10/2011
- UW, Oceanography: Why does the climate system care about ocean heat transport? 10/2011
- ACDC2011, Friday Harbor WA: Ocean heat transport and weak temperature gradients. 09/2011
- CalTech, Environ. Sci. & Eng.: Impact of ocean heat transport in cold and warm climates. 02/2011
- UW, Atmos. Sci.: Oceanic control of the sea ice edge and multiple equilibria. 01/2011
- Harvard U., Earth and Planetary Sci.: Multiple equilibria of sea ice and climate. 09/2010

Contributed Presentations

- Rose, BEJ, Robust non-local effects of ocean heat uptake on radiative feedback and subtropical cloud cover (oral presentation), Ocean Sciences, 2/2016
- Rayborn, Lance* and BEJ Rose, Robust effects of ocean heat uptake on radiative feedback and subtropical cloud cover: a study using radiative kernels (oral presentation), AGU Fall Meeting, 12/2015
- Rencurrel, M. Cameron* and BEJ Rose, Atmospheric compensation of variations in tropical ocean heat transport: understanding mechanisms and

implications on tectonic timescales (poster), AGU Fall Meeting, 12/2015

- Rose, BEJ, Climate in the Absence of Ocean Heat Transport (poster), AGU Fall Meeting, 12/2015
- Rose, BEJ, CLIMLAB: a Python-based software toolkit for interactive, process-oriented climate modeling (poster), AGU Fall Meeting, 12/2015
- Rose, BEJ, Accidental Lessons on Nonlinear Wind - Ocean - Sea Ice Interaction in the Tropics, with Implications for Snowball Earth (poster), AGU Fall Meeting, 12/2014
- Rose, BEJ, The dependence of transient climate sensitivity and radiative feedbacks on the spatial pattern of ocean heat uptake (oral presentation), Latsis Symposium, ETH Zurich, 06/2014.
- Rose, BEJ, D. Battisti and K. Armour, The dependence of transient climate sensitivity and radiative feedbacks on the spatial pattern of ocean heat uptake (oral presentation), AGU Fall Meeting, 12/2013.
- Rose, BEJ, Understanding the atmospheric response to ocean heat transport: a model inter-comparison (oral presentation), AGU Fall Meeting, 12/2012.
- Rose, BEJ, D Ferreira and J Marshall, Not all poleward heat transport is created equal: a new look at warm climates, water vapor feedback, and the low-temperature-gradient paradox (oral presentation), AGU Fall Meeting, 12/2011.
- Rose, BEJ, D Ferreira and J Marshall, On the dynamics of an abrupt climate change (oral presentation), CMOS Congress, Victoria BC, 06/2011.
- Rose, BEJ, D Ferreira and J Marshall, On the dynamics of an abrupt climate change (oral presentation), AMS Polar Meteorology and Oceanography Conference, Boston MA, 05/2011.
- Rose, BEJ, Oceanic control of the sea ice edge and multiple equilibria in the climate system (thesis defense), MIT, Cambridge MA, 07/2010.
- Rose, BEJ, D Ferreira and J Marshall, Multiple equilibria and abrupt climate change in coupled Aquaplanet simulations (oral presentation), CMOS Congress, Ottawa ON, 06/2010.
- Rose, BEJ, Ocean heat transport, sea ice, and multiple equilibria of the climate system, Sack Lunch Seminar in Oceanography and Climate, MIT, Cambridge MA, 05/2010.
- Rose, BEJ, D Ferreira and J Marshall, Multiple equilibria of the atmosphere-ocean-ice system (oral presentation), Ocean-Atmosphere Energy Transport conference, Pasadena CA, 11/2009.
- Rose, BEJ, Multiple equilibria of the atmosphere-ocean-ice system (oral presentation), Graduate Climate Conference, UW, Pack Forest WA, 04/2009.
- Rose, BEJ and J Marshall, Heat transport, wind stress and the ice edge: new insights from simple models (oral presentation), CMOS Congress, Kelowna BC, 04/2008.
- Rose, BEJ, Sea ice, wind, and ocean currents: feedbacks and instabilities in ice age climates (oral presentation), Graduate Climate Conference, UW, Pack Forest WA, 10/2007.
- Rose, BEJ and J Marshall, Constraints on atmospheric and oceanic heat

transport from an idealized coupled climate model with sea-ice (oral presentation), CMOS-CGU-AMS Joint Congress, St. John's NF, 05/2007.
- Rose, BEJ, The partition of heat transport in a simple coupled climate model (oral presentation), Graduate Climate Conference, UW, Pack Forest WA, 04/2006.
- Rose, BEJ and CA Lin, A reconstruction of historical summer drought in Quebec based on tree rings (poster), Symposium Ouranos sur les changements climatiques, Montreal QC, 06/2004.
- Rose, BEJ and CA Lin, Statistical relation between precipitation and vertical motion (oral presentation), Canadian CLIVAR Network Workshop, Victoria BC, 02/2001.

* *indicates student co-author*

Professional Service and Outreach

- Creator and developer of the CLIMLAB open-source software package
- Reviewer for Nature, J. Climate, J. Atmos. Sci., J. Geophys. Res., Geophys. Res. Lett., Nature Geosci., Nature Clim. Change, SIAM J. Appl. Dyn. Sys., Earth Sys. Dyn., & Encyclopedia of Natural Resources
- Proposal reviewer for National Science Foundation
- DAES graduate committee member (2015 -)
- Chair, planning committee for GFD / Env. Sci. teaching laboratory in E-TEC building. (2014 -)
- Organizer, DAES Climate Group weekly seminar series (2014 -)
- Session Convener: "Polar Climate and Predictability", AGU Fall Meeting 2015.
- Session Convener: "Innovative Insights into the Climate System and Climate Models: Exploring Scales and Parameter Spaces", AGU Fall Meeting 2014.
- Judge for Outstanding Student Presentation Awards, AGU Fall Meeting, 2013.
- Commendation for exceptional refereeing, Nature Publishing Group, 2012.
- Convener and moderator, Workshop on heat transport in aquaplanet models, UW Atmos. Sci., 07/2012.
- Moderator, climate dynamics session, 20th anniversary celebration of the NOAA C&GC Postdoctoral Fellowship Program, Silver Spring MD, 04/2011.
- Chair (invited), ocean circulation session, 3rd Graduate Climate Conference, UW, 04/2009.
- Session leader, YouthCAN Summit on Global Warming, MIT (2007, 2008, 2009)
- Public seminar: "Looking Back on the Future of Climate Change", MIT, 01/2008.
- Member of American Geophysical Union.